# Diagnosis and Treatment of Ante-Partum Hæmorrhage

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PROFUSE hæmorrhage occuring prior to, or shortly after, the birth of a child, is always a dangerous, and often a fatal, complication, although with proper diagnosis and treatment the maternal death rate should be very low.

Practically all varieties of ante-partum hæmorrhage, with the exception of those originating from lacerations of the genital tract, are due to a partial separation of the placenta from its attachment to the uterine wall. This accident is an inevitable accompaniment of labour when the placenta is implanted in the region of the internal os—placenta prævia—but also occurs when the placenta occupies its normal situation, i.e., accidental hæmorrhage.

Our knowledge of the pathology, and our experiences of the treatment, of accidental hæmorrhage, have made considerable advance in recent years, as a result of the work of several investigators, notably Professor F. J. Browne of London.

In 1885, Winter first drew attention to the presence of albuminuria in patients suffering from accidental hæmorrhage, and since then we have gradually come to recognise that the hæmorrhage is often merely a symptom, or result of a deep-seated systemic disease, producing effects in other parts of the body.

Many conditions have been stated as being possible causes of accidental hæmorrhage, e.g., syphilis, endometritis, etc., but none of these can be shown to be an important factor in any given series of cases. Albuminuria, however, is found in a large proportion of cases—eighty-four per cent. of obstetric cases in Ley's series, and almost one hundred per cent. in F. J. Browne's series of experimental cases of accidental hæmorrhage.

O'Donel Browne states that while not questioning "the accepted and proved knowledge that nephritis can produce utero-placental changes which can precipitate a woman into the critical condition of accidental hæmorrhage, individual patients show wide variations in the degree of albuminuria, and that these alterations did not appear to bear any relation to the amount of blood lost, but rather to the rapidity and facility with which its products were absorbed."

Clinically it is a well recognised fact that a woman with albuminuria runs three great risks :—

1. Eclampsia.
2. Accidental hæmorrhage.
3. Death of the fœtus in utero.

And in Ley's series of cases of accidental hæmorrhage thirty-four per cent. of them had eclampsia.

Microscopical examination of the uterine muscle reveals a succession of degenerative changes extending to actual necrosis of the muscle bundles. Microscopically in serious cases the muscle fibres are separated by widespread hæmorrhage and areas of fatty degeneration.

In the great majority of cases of accidental hæmorrhage, mechanical causes or

traumatism play no part, and most, in fact nearly all, cases of accidental hæmorrhage are as much a manifestation of toxæmia as eclampsia.

Mechanical causes cannot be altogether ruled out. I have seen an accidental hæmorrhage occur after a breech presentation had been converted into a vertex presentation during an ante-natal examination.

The version was done under anæsthesia, which I think is always a mistake, as with the patient anæsthetised one is liable to use more force than the patient herself would permit if conscious. I now make it a rule that if I cannot turn a breech into a vertex at an ordinary ante-natal examination, I do not attempt it under anæsthesia.

Another mechanical cause which should be borne in mind is the separation of the placenta during the passage of a stomach tube for induction of labour.

## ACCIDENTAL HÆMORRHAGE.

There are three main types of accidental hæmorrhage :—

1. Concealed accidental hæmorrhage.
2. External.
3. Combined internal and external.

Cases of concealed hæmorrhage are amongst the most formidable conditions with which the obstetrician has to deal. The worst cases of toxæmic hæmorrhage are concealed cases owing to the co-existing, or rather causal, necrosis and paralysis of the uterine wall. The blood does not escape, because the uterus, having no contractile power, passively dilates to accommodate it. If the uterine muscle were capable of contracting, we should expect the blood to be forced down from the placental site beneath the membranes to the os, where it would escape, and this is precisely what does happen if, and when, the uterine muscle recovers sufficiently to exert its contracting power.

The most characteristic symptom is the sudden onset of very severe pain in the abdomen. The shock produced by the pain is obvious from the pallor, weak and rapid pulse, subnormal temperature, and clammy skin. There is considerable anæmia due to loss of a large quantity of blood into the uterine cavity. On examination of the abdomen the uterus is felt as a hard, tense, and tender mass, quite unlike the normal uterus at full time, and may be larger than might be expected from the duration of the pregnancy. No fœtal parts can be recognised, or fœtal heart heard. There is usually great tenderness of the uterus. Absence of tenderness in the flanks or epigastrium helps to distinguish the condition from sudden general peritonitis due to perforative lesions. The shock and blanching may be almost, if not quite, as great, but the maximum tenderness and rigidity are found away from the uterus, i.e., in flanks, or epigastrium in perforative lesions.

Per vaginam the os is found closed as a rule, but if open the membranes can be felt to be tense. The urine contains albumen, and there may be much œdema.

## TREATMENT OF CONCEALED ACCIDENTAL HÆMORRHAGE.

It is important to remember that the severe symptoms which are observed on first seeing the patient, due to the initial shock caused by the first large intra-

uterine hæmorrhage, are temporary, and tend to show spontaneous recovery, i.e., if the hæmorrhage ceases and no manipulative interference is attempted at this stage.

The essential requirements during the period of shock are rest, warmth, and morphia.

As the shock passes off, the patient's general condition will improve. Real improvement from the prognostic standpoint will be manifested by the return of uterine contractions, which in their turn will cause some external hæmorrhage.

The recovery of the uterus is also a critical point in the prognosis, because, apart from its indication of the general recovery, it means that the danger of further bleeding is considerably diminished. When, therefore, contractions appear it is safe to apply local treatment, both to assist the dilatation and still further to lessen the risk of another attack of bleeding. The local treatment consists of either rupturing the membranes or plugging the vagina, or both : I will refer more fully to this later.

The gravest cases are those in which the initial hæmorrhage or the uterine necrosis have been so great as to produce a permanent condition of shock, to which neither patient nor uterus shows any signs of reacting. Observation of the general appearance, pulse rate, and size of the uterus, reveals the existence of continued bleeding into the uterus. In spite of the great risk of abdominal operations under these circumstances, it is the only hope.

Cæsarean section must be done as quickly as possible. The uterus should not be removed unless absolutely necessary, but if it is very disorganised, as shown by sub-peritoneal hæmorrhages and marked discolouration, blood is saved by doing a hysterectomy without opening the uterus. Blood transfusion or gum saline intravenously should be given during the operation.

## COMBINED EXTERNAL AND INTERNAL ACCIDENTAL HÆMORRHAGE.

We shall now consider the next and, fortunately, more common type of hæmorrhage : combined external and internal.

In the diagnosis of a case of ante-partum hæmorrhage, the first thing is to decide where the placenta is situated. There are, of course, a small number of cases where the hæmorrhage is due to some cervical growth, e.g., mucous polypus, or carcinoma, but in the large majority of cases the bleeding is due either to a placenta prævia, or to the separation of the normally situated placenta, i.e., accidental hæmorrhage.

Difficulty arises in distinguishing between those cases of incomplete placenta prævia, where the placenta is just out of reach of the examining finger, and an accidental hæmorrhage, but the importance of differentiating between these is not great, as with few exceptions the treatment in both cases is the same.

In diagnosis the first point is the history, which is very suggestive. In placenta prævia, the patient is usually going about in perfect health, and while at her daily work, or even in bed asleep, she suddenly has a painless and apparently causeless

hæmorrhage, which at first may be slight, but is certain to recur, and perhaps more severely.

On the other hand, the patient who has an accidental hæmorrhage has usually not been well for some time before, has manifested toxæmic symptoms, e.g., œdema, scanty urine, albuminuria, etc., and the onset of her hæmorrhage is nearly always associated with some pain, however slight.

On abdominal examination in an accidental hæmorrhage, the presenting part is usually engaged in the brim of the pelvis.

It is a fairly good rule that if the head is fixed in the brim of the pelvis, the case is not one of placenta prævia, as the presence of the placenta in the lower uterine segment prevents the presenting part from fixing, and thereby encourages abnormal lies.

On vaginal examination, the presence of blood-clot may confuse, but after removal of this the presenting part can usually be felt through all the fornices, without any placenta intervening; or in a case of placenta prævia, the placenta can be felt filling some or all of the fornices.

If the cervix is dilated sufficiently to permit the introduction of the finger into the lower uterine segment, then this can be explored and the presence of the placenta determined.

In those cases of incomplete placenta prævia where the placenta is just out of reach, its presence may be strongly suspected on feeling the characteristic thickening of the membranes which occurs as the edge of the placenta is approached.

Exploration of the lower uterine segment in a case of accidental hæmorrhage does not as a rule cause any sudden increase in the bleeding, whereas in placenta prævia this almost invariably occurs. Therefore, before attempting this examination, the obstetrician should have everything ready to carry out the necessary treatment, as if hæmorrhage is provoked it may be very severe.

There are two other points which help to differentiate between the two conditions. First of all, the presence of albumen in the urine. This is nearly always present in cases of accidental hæmorrhage in human beings, and is present in one hundred per cent. of cases in experimental accidental hæmorrhage.

Secondly, the uterus which contains a retroplacental clot is usually tender on palpation. Even when the hæmatoma is small, a localised area of tenderness in the uterus is usually present in the upper uterine segment.

## TREATMENT OF COMBINED EXTERNAL AND INTERNAL HÆMORRHAGE.

A discussion of the therapeutic measures available in dealing with the problem of ante-partum hæmorrhage involves the consideration of certain points, on which medical opinion is divided. In the first place: Is it justifiable for a practitioner to accept the risks and responsibilities of the cases surrounded by the facilities afforded in the patient's own home? The answer to this question lies largely with the matter of diagnosis.

Undoubtedly a number of cases occur where slight detachment of the normally

situated placenta leads to temporary and unimportant ante-partum hæmorrhage, which tends to spontaneous cure.

If the hæmorrhage is slight, and the placenta normally situated, the case may be treated in her own home without undue risk.

Placenta prævia, however, is a different proposition, and in the treatment of all its varieties, it is advisable to enlist, when possible, all the advantages of a hospital or properly-equipped nursing-home.

This complication even under ideal circumstances is still attended with a maternal mortality of three to ten per cent.

In looking over the reports of British lying-in hosptials, one cannot fail to be impressed by the frequency with which it is recorded that the patient was only admitted at a comparatively late period in the disease.

"Hæmorrhage has been in progress for several days," or "In a moribund condition," are remarks only too commonly found in these reports, showing that it has only been considered incumbent to call in institutional aid when attempts at domiciliary treatment failed, or in some cases had not been undertaken at all, the practitioner being lulled by the hope that the hæmorrhage would not recur, until a catastrophic flooding put the patient into imminent peril of her life.

The appalling fœtal mortality which is associated with the methods commonly employed to-day in the treatment of placenta prævia, naturally prompts the query whether the accepted standards of procedure are the best possible. It is assumed that no method of treatment must be countenanced which would raise the maternal risk, even with the possibility of reducing the fœtal mortality.

The question should be considered as to whether, without increasing the maternal danger, it is possible to lower the number of stillbirths. The fœtal mortality of placenta prævia is variously estimated at thirty-five to sixty per cent. When to this figure is added the associated maternal mortality of three to four per cent., the gravity of the complication will be appreciated.

In any attempt to improve this state of things—and this also applies to accidental hæmorrhage—the first indication is to recognise the complication at the earliest possible moment, and the second is not to temporise, but to place the patient in such surroundings that any surgical procedure can be attempted without adding to the risks inherent to the condition. The early treatment of placenta prævia is just as important as that of acute appendicitis.

In discussing the treatment suitable for a particular case, it is important to recognise that accidental hæmorrhage varies within wide limits as to its severity and risks, both fœtal and maternal.

There are some mild cases that with rest in bed, and morphia or bromides, tend to cease spontaneously, and the pregnancy continues to full time. These cases should be treated in the same way as threatened abortion, bearing in mind the underlying toxæmic condition; but once a patient has had a hæmorrhage, she is always in danger of having a recurrence, which may be more severe than the first. Once a severe hæmorrhage has occurred, active treatment is imperative.

The principle underlying the treatment of moderately severe cases is based on

the fact that if the uterus can be made to contract and retract, the torn utero placenta blood-vessels will be closed, and the bleeding stopped. In moderate degrees of external and combined accidental hæmorrhage the uterine muscle is not seriously affected, and the desired contraction may be obtained in one of two ways :—

1. Rupturing the membranes.
2. Plugging the vagina.

1. RUPTURE OF THE MEMBRANES.—This is only available in slight cases of bleeding, where the uterine contractions are occurring and the cervix is partly dilated. It is unsuitable where the bleeding is at all severe, as labour may not set in for several hours, and then may be slow. The object of rupturing the membranes is to stimulate the uterine contractions, and sometimes it fails to do so.

After rupture of the membranes, a tight abdominal binder should be applied, and about ½ c.c. pituitrin given. If this does not control the bleeding then one must plug the vagina.

2. PLUGGING THE VAGINA.—This method is adopted in those cases where the following conditions are present :—

(*a*) Where the hæmorrhage is at all severe.
(*b*) Where the patient is not in labour, or only very early in labour.
(*c*) Where the os is not sufficiently dilated to permit of the delivery of the child.

The operation is performed as follows :—After catheterising the patient, who is placed in the dorsal position,* and well anæsthetised, the left hand is passed into the vagina so that the fingers reach up to the posterior fornix and the palm of the hand faces towards the rectum. Pledgets of wool which have been well boiled are then taken and squeezed out of one per cent. lysol. One of these is pushed into the posterior fornix. Another is pushed into one lateral fornix, and a third into the other lateral fornix, and a fourth into the anterior fornix. If there is any space between these pledgets, push more in one by one, until the cervix is firmly and securely ringed by pledgets. This ring round the cervix is the foundation of the vaginal plug. If it is not firm the plug is useless. Fill the vagina from above downwards with more squeezed pledgets, putting them in as tightly as possible. Put a pad over the vagina and keep the plug in position by a firm bandage. Then put a firm abdominal binder on, which is pinned from above down. The plug is left in for about six hours, and by then the hæmorrhage should be controlled, and in the majority of cases labour will have started.

After the insertion of a vaginal tampon, the patient should be given a ¼ gr. of morphia, as the presence of the plug causes considerable shock.

DISADVANTAGES OF PLUGGING.

(*a*) Sepsis if not carefully inserted.
(*b*) Pain.
(*c*) The insertion of a plug often causes severe shock.

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* Tweedy, who originally described this method, put the patient in the left lateral position.

At the end of six hours, or earlier if there is much shock, the plug is removed and a hot vaginal douche is given. By this time it is found that the patient is in labour, and that the os is considerably dilated. Tweedy thought that the plug acted by compressing the uterine arteries, but this is hardly possible : it probably acts by stimulating the uterus to contract, and raising the intra-uterine pressure.

It is not wise to leave a case of accidental hæmorrhage for some hours after delivery, as she may have a post-partum hæmorrhage or may have syncopal attacks as a result of the hæmorrhage which occurred before delivery.

In deciding the treatment for a case of placenta prævia, the following points must be considered :—

(*a*) The variety of placenta prævia.
(*b*) The period of gestation.
(*c*) The severity of the hæmorrhage.
(*d*) The amount of dilatation of the os.
(*e*) The parity of the patient.

One must remember that the mother's life is the first consideration, and that she is not out of danger until the uterus is emptied. In other words, temporising is dangerous, and should only be considered if the patient is very anxious that the child should be alive, if the hæmorrhage has been slight, and the patient is under supervision in an institution.

Owing to the absence of contraction and retraction in the lower uterine segment, it follows that in order to control the hæmorrhage, only direct pressure on the bleeding vessels will be successful. This may be exerted from inside the uterus, or from the vagina.

Pressure from inside the uterus may be exerted in two ways :—

1. By the presenting part : either by rupture of the membranes or by version.
2. By a hydrostatic dilator.

(*a*) *Rupture of the Membranes.*—Simple rupture of the membranes stimulates the uterus to contract, and presses the presenting part on to the separated placenta, thereby occluding the torn utero placental vessels. The rupture in the membranes must be a large one, as otherwise the placenta will be dragged on and further separation produced.

This method can be rendered more effective if at the same time a Willett's forcep is applied to the child's scalp, and a weight of one to two pounds fixed to the handle and slung over the end of the bed. The injury to the child's scalp is practically negligible.

This method of treatment is most useful for those cases of placenta prævia where the placenta just encroaches on the lower uterine segment, and is perhaps just out of reach of the examining finger. I do not wish to minimise the risk attached to this type of case, as it can cause serious or even fatal hæmorrhage if treatment is delayed; but in the past they have probably been overtreated, too much manipulative interference, or even cæsarean section, being carried out for a case which will progress perfectly well is nothing more is done than simple rupture of the membranes.

The great advantage of this method is that the prognosis for the child is so much better than with version. Labour may be terminated with forceps when the os is fully dilated, if there is any tendency to further bleeding, but if possible leave the expulsion of the child to nature.

(*b*) *Version.*—This is probably the favourite method of treating placenta prævia, but is a method that is not without risk. The great objections to the method are :—

1. Fœtal mortality.
2. Sepsis.
3. Rupture of the uterus.

Version is the best method of treatment in those cases of placenta prævia where the placenta just encroaches on the internal os, or is partially over it.

The reason for this is that these cases nearly always first cause symptoms at a stage when the child is only just viable, and often the first symptom is a severe hæmorrhage which can only be controlled by the pressure exerted by the half breech.

The technique of version is known to all, but there are a few points which I think are worth mentioning.

When the child presents as a breech, the only thing necessary is to pass two fingers through the cervix, catch a foot and withdraw it. If the cervix is not sufficiently dilated to permit the passage of the two fingers, and the foot, then a valsellum can be passed under the guidance of the finger, and the outer side of the foot caught and withdrawn.

Where the child presents as a vertex, some authorities recommend that the presentation should be changed into a breech by external version first, and then the foot brought through the cervix.

The objection to this is that in a certain number of cases the legs are extended, and by doing an external version first one has only made the withdrawal of a foot more difficult than before, as they are now lying near the fundus, instead of quite close to the internal os.

As one has to introduce the hand into the uterus, it is better to complete the whole manœuvre at this time.

Once the version is done and the foot brought into the vagina, the danger of any further bleeding is past, and the woman only runs one risk at the moment, namely, that the attendant should make any attempt at immediate delivery. Always remember Herman's rule : "Early version, slow extraction."

The chief mortality from placenta prævia in this country arises from the shock of quick delivery, following a blanching hæmorrhage. If, therefore, after arrest of the hæmorrhage by version or other suitable means, sufficient interval of time elapses before delivery, during which recovery from the anæmia can to some degree take place, the outlook will greatly improve.

If, on the other hand, severe manipulations, such as manual dilatation of the cervix, followed by internal version and immediate extraction, are carried out on a woman exsanguinited by a severe hæmorrhage, the worst possible treatment is being adopted, and a fatal issue is almost certain.

2. *Hydrostatic Dilators.*—Hydrostatic dilators, e.g., Champetier de Rebes bag, outside a hospital, are of very little practical use, as the practitioner very rarely requires one, and, owing to their perishable nature, when the occasion arises for their use they may be leaking.

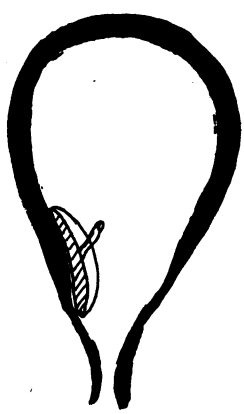
## CÆSAREAN SECTION.

In the treatment of placenta prævia, Cæsarean section has a very small, but well defined place. The type of case most suitable for this method is the primigravida, with a central placenta prævia, who has lost a small or moderate amount of blood at or near full time, and with the fœtal heart audible. Here we have a woman with a live and mature baby, who may expect to have a fairly prolonged stage of dilatation, during which she runs the risk of a very severe hæmorrhage.

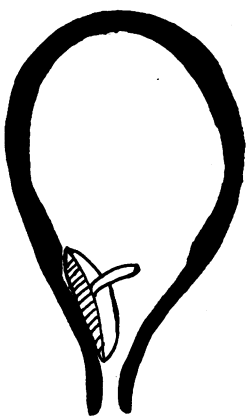
It is a remarkeable fact that a central placenta prævia very often does not manifest itself until just at full term; the majority of cases in my experience have been in primigravida, and usually the cervix is undilated.

Unsuitable cases are those who have had a severe hæmorrhage, as this usually has affected both mother and child, and Cæsarean section has no place in the treatment of the blanched patient.

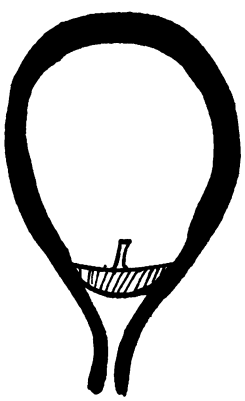
It is not the amount of blood that is already lost which is the indication for operating, but the amount which may be expected to be lost if vaginal methods of delivery are used.



1
Rupture Membranes.



2
Perform Version.



3
Perform Cæsarean Section.

Generally speaking, the treatment of placenta prævia can be summarised in the above three figures.

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